

# ***South Coast Air Quality Management District***

## ***Statement of Basis***

### ***Proposed Title V Permit***

(Proposed for Public Review: 07/31/08)

|                                    |   |
|------------------------------------|---|
| <b>Facility Name:</b>              | ConocoPhillips Company, Wilmington Refinery |
| <b>Facility ID:</b>                | 800363                                      |
| <b>SIC Code:</b>                   | 2911  |
| <b>Facility Address:</b>           | 1660 W Anaheim St<br>Wilmington, CA 90744   |
| <b>Application Number:</b>         | 337520                                      |
| <b>Application Submittal Date:</b> | 2/5/98                                      |
| <b>AQMD Contact Person:</b>        | Andrew Chew, Air Quality Engineer           |
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## **1. Introduction and Scope of Permit**

Title V is a national operating permit program for air pollution sources. Facilities that are subject to Title V must obtain Title V permits and comply with specific Title V procedures to modify their permits. This permit replaces the facility's other existing permits. Title V does not necessarily include any new requirements for reducing emissions. It does, however, include new permitting, noticing, recordkeeping, and reporting requirements.

The South Coast Air Quality Management District (AQMD) implements Title V through Regulation XXX – Title V Permits, adopted by the AQMD Governing Board in order to comply with United States Environmental Protection Agency's (EPA's) requirement that local air permitting authorities develop a Title V program. Regulation XXX was developed by the AQMD with the participation of the public and affected facilities through a series of public workshops, working group meetings, public hearings and other meetings. AQMD also has published a draft of the Technical Guidance Document for Title V (March 2005, Version 4.0) available on the AQMD website at <http://www.aqmd.gov/titlev/TGD.html>.

The Title V major source threshold for a particular pollutant depends on the attainment status of the pollutant in the South Coast Air Basin. The Basin is in attainment with National Ambient Air Quality Standards (NAAQS) for NO<sub>2</sub>, SO<sub>2</sub>, CO, and lead. The status for CO was redesignated from nonattainment to attainment in June 2007 (72 FR 26718). The status for PM<sub>10</sub> is currently serious nonattainment. The status for ozone is currently extreme nonattainment.

The AQMD proposes to issue an initial Title V permit to cover the Wilmington Refinery operations that is owned and operated by ConocoPhillips Company and is located at 1660 W. Anaheim St, Wilmington, CA 90744. ConocoPhillips also owns and operates refinery operations at 1520 E. Sepulveda Blvd. in Carson California. The refinery operations performed at the Carson Refinery include initial separation, conversion, and some treating of the crude oil. The Wilmington Refinery receives the intermediate products from the Carson Refinery for additional conversion, treating, and blending of the blendstocks into finished products. The operations at both facilities are subject to Title V requirements because these facilities are major sources and are subject to certain New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements. The initial Title V permit for the Carson Refinery was proposed for issuance on June 6, 2008. The subject of this Statement of Basis and the proposed Title V permit consist of the Wilmington Refinery only.

ConocoPhillips also operates a Marine Terminal (LARMT) (Facility I.D. 111642) in support of both refinery operations, located at Berths 148-151 Pier A Street, Wilmington, CA 90744. Raw, intermediate, and finished materials are transferred between LARMT and the two refineries primarily by pipelines. The LARMT received an exemption from Title V permitting requirements by accepting federally enforceable permit conditions that limit the facilities potential to emit below the Title V applicability emission thresholds specified in AQMD Rule 3001.

Finished products such as gasoline, diesel and other products produced at the refinery are transferred via the ConocoPhillips Torrance Tank Farm (Facility ID 111814) to three bulk loading terminals. The Torrance Tank Farm is located at 2650 Lomita Blvd, Torrance, CA 90505. This facility was issued its own separate initial Title V permit on April 16, 2001

Finally, gasoline, diesel, and other products produced at the refinery are distributed via three bulk loading terminals including ConocoPhillips Colton Terminal - West (Facility ID 800364), located at 2301 S. Riverside Ave, Bloomington, CA 92316; the ConocoPhillips LA Terminal (Facility ID 800365) located at 13500 S. Broadway Ave., Los Angeles, CA 90061; and the ConocoPhillips Colton Terminal – East (Facility ID 18503) located at 271 E. Slover Ave., Rialto, CA 92376. The Colton Terminal - West was issued its own separate initial Title V permit on April 16, 2001. The LA Terminal and the Colton Terminal – East have separately applied for their Title V permits in 1999 and 2002, respectively. The Title V permits for these terminals will be proposed at a later date.

## **2. Facility Description**

ConocoPhillips Los Angeles Refinery is owned and operated by ConocoPhillips Company and is located in Carson and Wilmington. It processes crude oil into various petroleum products such as gasoline, diesel, jet fuel, fuel oil, cutter stock, liquefied petroleum gases (LPG), and coke. Currently, the ConocoPhillips Carson refinery has a capacity to process approximately 138,700 barrels of crude oil per day. The refinery utilizes several processes to separate petroleum components within crude oil and to convert heavy components into lighter hydrocarbon compounds. These hydrocarbon compounds are used as blending components for gasoline, diesel, and other products. At the Carson refinery, crude oil is separated into LPG, kerosene,

diesel, naphtha, and gas oil. A portion of the gas oil is hydrotreated to remove sulfur and other impurities. The intermediate products (naphtha and treated/untreated gas oil) are then sent to the Wilmington refinery via pipeline for further refining including conversion, treating and blending to produce finished products such as gasoline, diesel, jet fuel and cutter stock which are sold to the general public and industry as transportation fuels. The cutter stock is sold to industry for blending into fuel oil, which is utilized as transportation and heating fuels. The refinery also produces four co-products: petroleum coke, hydrogen, carbon dioxide, and sulfur.

Operation at the Wilmington refinery includes the following major processes:

#### Fluid Catalytic Cracking Unit (FCCU)

The FCCU converts gasoil into lighter hydrocarbon compounds. The process is called “cracking process.” It involves mixing gasoil feed with fluidized catalyst in a reactor under appropriate temperature and pressure. The FCCU produces a large quantity of gasoline blending components and feed stocks for the alkylation operation.

#### Alkylation Unit

This unit produces alkylate, a high octane gasoline component by allowing olefin feed stock, such as butylenes, to react with isobutane in the presence of sulfuric acid.

#### Isomerization Unit

The isomerization unit changes straight-chain hydrocarbon molecules into branched-chain hydrocarbons with higher octane rating. The product, isomerate, is a gasoline blending stock that is extremely low in benzene.

#### Reforming

Reforming converts naphtha fractions to products of higher octane value. Thermal reforming is a light cracking process applied to heavy naphthas to produce increased yields of hydrocarbons in the gasoline boiling range. Catalytic reforming is applied to various naphtha fractions, and primarily consists of the conversion of naphthenes and paraffins to aromatics. Hydrogen is an important byproduct of this process.

#### Hydrocracking

Heavy gas oil is cracked under high pressure in the presence of hydrogen and a catalyst into lighter components which is used as blending stocks for gasoline and other products.

#### Sulfuric Acid Plant

The sulfuric acid plant primarily produces sulfuric acid for use as a catalyst in the alkylation process within the refinery and for sale for industrial use.

#### Hydrotreating

Petroleum products are catalytically stabilized and impurities are removed from products or feedstocks by reacting them with hydrogen. Impurities removed by hydrotreating include sulfur, nitrogen, and oxygen. Hydrotreating is applied to a wide range of feedstocks, from naphtha to reduced crude oil.

#### Hydrogen Production Plant

The hydrogen plant produces hydrogen for use in various hydrotreating processes. Carbon dioxide is generated in the hydrogen plant as a co-product. The carbon dioxide is removed and recovered for sale to a distribution company for various use.

#### Blending

The various process units create blend stocks for gasoline, jet fuel and diesel. For example, alkylate, reformate, and FCC gasoline are all gasoline blend stocks. The blending process combines these blend stocks to assure that all finished products meet their specifications.

In addition to the above major processes, the facility operates other equipment that include numerous combustion units (such as a cogeneration facility, heaters and boilers utilized in many of the above processes), sulfur plants, refinery flares, and wastewater treatment systems. Also, the facility uses numerous fixed roof tanks, external floating roof storage tanks, domed tanks, and pressurized storage tanks to store intermediate and finished products.

### **3. Construction and Permitting History**

The Wilmington portion of the refinery has been in continuous operation since 1919. Numerous permits to construct and permits to operate have been issued to the refinery since the formation of the Los Angeles County Air Pollution Control District in 1947. The current permit to operate and/or permit to construct for each permit unit located at the refinery is contained in the proposed Title V permit.

#### California Reformulated Gasoline Project

To comply with Federal and CARB Reformulated gasoline specifications, existing process units at the Wilmington Plant were modified and new units constructed in 1995. Most of the refinery's existing units were modified to varied degrees and two new units, a butane processing unit and a hydrogen production plant, were constructed. Crude throughput capacity was not increased and the types and volume of the refinery's major finished products, gasoline, diesel and jet fuel, did not change significantly.

#### Ethanol Import Project

To produce gasoline without MTBE, modifications were made to the Wilmington Plant in 2000 to convert storage tanks and transfer systems to ethanol service. Tanks previously in MTBE service were changed to ethanol service. Piping and transfer systems were modified so that pumps and piping handling ethanol were segregated from other products.

#### California Phase III Reformulated Fuels Project

To comply with CARB RFG Phase 3 gasoline specifications, existing process units at the Wilmington Plant were modified in 2001. The two primary objectives for these modifications was to increase the rate through the Alkylation Unit to produce more alkylate, which is a high

octane and low vapor pressure gasoline blendstock, and to reduce the sulfur level of gasoline. The process unit modifications also required modifications to associated support facilities, such as utility systems and interconnecting piping. Additionally, some tanks had service changes. The project did not increase the crude throughput capacity of the Refinery.

#### Ultra-Low Sulfur Diesel (ULSD) Project

To comply with the federal, state and SCAQMD regulations that limit the sulfur content of diesel fuels, existing process units at the Wilmington Plant were modified in 2004. The ConocoPhillips Los Angeles Refinery previously produced low sulfur diesel (500 ppmw) at both the Wilmington and Carson Plants. Low sulfur diesel was primarily produced at the Wilmington Plant in the Mid-Barrel Hydrotreater Unit 90, along with a small amount from the heavy portion of naphtha produced in FCC Naphtha Hydrotreater Unit 59. The ConocoPhillips Los Angeles Refinery also periodically produced a small amount of CARB Diesel at the Carson Plant in a batch operation at the high pressure Gas Oil Hydrotreater HDT, which normally hydrotreats FCC gas oil feed.

The ULSD project had two major components: (1) revamp the Mid-barrel Hydrotreater Unit 90 to decrease the hydrotreating reaction space velocity to meet the required diesel sulfur level; and (2) modify the mid-barrel handling and logistics to segregate diesel from higher sulfur jet fuel. The project also improved hydrogen distribution at the Wilmington Plant. This project did not increase diesel production, affect the Refinery's existing ability to produce CARB Diesel at the Carson Plant Gas Oil Hydrotreater HDT, or increase crude throughput.

#### FCCU Particulate Reduction Project

In November 2003, the SCAQMD adopted Rule 1105.1 – PM10 and Ammonia Emissions from FCCUs, which regulates particulate matter less than 10 microns in diameter (PM10) and ammonia flue gas emissions from Fluid Catalytic Cracking Units. There are two leading technology options for FCCU flue gas particulate emission control: Wet Gas Scrubber and Dry Electrostatic Precipitator (ESP). ConocoPhillips selected a Wet Gas Scrubber as the best technology to meet the project objectives for its FCCU at the Wilmington Plant. Wet gas scrubbers require no ammonia use, can control sulfur oxides (SOx) emissions, a precursor to PM2.5 and PM10, and can effectively control particulates during transient conditions like start-ups and shut downs. The wet gas scrubber will go on-line in the fall of 2008.

#### Boiler #7 NOX Reduction Project

A Selective Catalytic Reduction Unit will be installed on Boiler 7 in 2008 at the Wilmington Plant to reduce NOx emissions. Additional NOx emission reductions will assist the Wilmington Plant in meeting the declining NOx RECLAIM yearly allocation levels as required under Regulation XX. SCR is considered to be Best Available Control Technology (BACT) for the control of NOx from combustion sources. The aqueous ammonia to be used in the SCR will consist of 19 percent ammonia. The NOx concentration from the SCR is expected to be approximately nine parts per million. The ammonia will be supplied by installing a new 12,000-gallon pressurized storage tank for 19 percent aqueous ammonia.

#### **4. Regulatory Applicability Determinations**

Applicable legal requirements with which this refinery must comply have been identified in the Title V permit (for example, Sections D, E, and H of the proposed Title V permit). Device level condition H23.x denotes applicability of federal regulations and source specific AQMD Rules to permitted equipment. Applicability determinations (i.e., determinations made by the District with respect to what legal requirements apply to a specific piece of equipment, process, or operation) for this facility have been completed. Federal NSPS requirements of 40 CFR Part 60 apply to certain units at the facility and the permit terms and conditions may be found in Sections D and H of the Title V permit. NESHAP requirements of 40 CFR Parts 61 and 63 apply to certain units at the facility and the permit terms and conditions may be found in Sections D, H, and J of the Title V permit. Determinations of federal regulations that do not apply can be found in this section of the Statement of Basis.

This section contains a discussion of complex federal regulatory applicability determinations. This section also summarizes the NSPS and NESHAP applicability determinations for permitted equipment at this facility.

##### Federal Regulations

##### ***Standards of Performance for New Stationary Sources (NSPS) (40 CFR 60)***

With the exception of certain specific equipment as further explained in Tables 4.1 to 4.3 below, the refinery is generally subject to the following NSPSs:

- 40 CFR 60 Subpart Cd – Emissions Guidelines and Compliance Times for Sulfuric Acid Production Units
- 40 CFR 60 Subpart J – Standards of Performance for Petroleum Refineries
- 40 CFR 60 Subpart K – Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973 and Prior to May 19, 1978,
- 40 CFR 60 Subpart Ka – Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978 and Prior to July 23, 1984,
- 40 CFR 60 Subpart Kb – Standards of Performance for Volatile Organic Storage Vessels (Including Petroleum Liquids Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984,
- 40 CFR 60 Subpart GG – Standards of Performance for Stationary Gas Turbines
- 40 CFR 60 Subpart GGG – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries,
- 40 CFR 60 Subpart QQQ – Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems.

The above regulations specify standards for applicable equipment within the refinery based on construction date or subsequent modifications that resulted in an emission increase as defined by 40 CFR 60.14(a) or reconstruction with a capital cost of the new components exceeding 50

percent of the fixed capital cost that would be required to construct a comparable entirely new facility as defined in 40 CFR 60.15(a) and (b). The applicability of the above rules is based on information contained in the permit application files or through refinery responses to information requests.

All of the equipment in the Title V Permit have been reviewed to determine whether they are subject to any of the NSPSs. Tables 4.1 to 4.3 below contain tabulated summaries of selected negative determinations regarding NSPS applicability.

**Table 4.1 Combustion Sources Not Subject to NSPS Requirements**

| Device ID | Equipment | Regulation  | Summary of Non-Applicability Determination   |
|-----------|-----------|---|--|
| D684 D686 | Boiler    | 40 CFR 60, Subpart D <sup>1</sup> /Db <sup>2</sup>                  | Original construction before 8/17/71. No subsequent modification or reconstruction.  |
| D687 D688 | Boiler    | 40 CFR 60, Subpart D <sup>1</sup> /Db <sup>2</sup>                  | Heat input rating no more than 250 MMBtu/hr. Original construction before 6/19/84. No subsequent modification or reconstruction. |
| D829      | Boiler    | 40 CFR 60, Subpart D <sup>1</sup> /Db <sup>2</sup> /Dc <sup>3</sup> | Heat input rating no more than 100 MMBtu/hr. Original construction before 6/9/89. No subsequent modification or reconstruction.  |

<sup>1</sup> 40 CFR 60 Subpart D – Standards of Performance for Fossil-Fuel Fired Steam Generators for Which Construction Commenced after August 17, 1971.

<sup>2</sup> 40 CFR 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.

<sup>3</sup> 40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

**Table 4.2 Storage Tanks and Wastewater Systems Not Subject to NSPS Requirements**

| Device ID   | Equipment    | Regulation                 | Summary of Non-Applicability Determination              |
|---|--------------|----------------------------|---|
| D379 D540<br>D541 D542<br>D701 D702<br>D1370 D1386<br>D1436 D1474 | Storage Tank | 40 CFR 60, Subpart K/Ka/Kb | Tanks are permitted to store inorganic liquids only.    |
| D529 D697<br>D825 D1368   | Storage Tank | 40 CFR 60, Subpart K/Ka/Kb | Storage capacity below threshold for the subject NSPSs. |

| Device ID   | Equipment    | Regulation                    | Summary of Non-Applicability Determination   |
|---|--------------|-------------------------------|--|
| D360 D370<br>D371 D552<br>D544 D545<br>D554 D569<br>D579 D588<br>D589 D591<br>D595 D596<br>D599 D600<br>D607 D609<br>D611 D613<br>D614 D616<br>D617 D619<br>D621 D622<br>D623 D627<br>D628 D631<br>D632 D634<br>D635 D636<br>D637 D638              | Storage Tank | 40 CFR 60,<br>Subpart K/Ka/Kb | Vapor pressure of permitted commodities is below the vapor pressure threshold of the subject NSPSs.  |
| D640 D642<br>D643 D644<br>D645 D646<br>D647 D648<br>D649 D659<br>D660 D661<br>D662 D1367  | Storage Tank | 40 CFR 60,<br>Subpart K/Ka/Kb | These tanks are pressure vessels designed to operate in excess of 30 psig without emissions to the atm. except under emergency conditions. |
| D356 D357<br>D358 D359<br>D361 D362<br>D363 D364<br>D388 D531<br>D535 D536<br>D537 D543<br>D547 D548<br>D550 D551<br>D553 D557<br>D558 D559<br>D560 D561<br>D564 D565<br>D566 D568<br>D570 D571<br>D572 D573<br>D574 D577<br>D578 D583<br>D587 D592 | Storage Tank | 40 CFR 60,<br>Subpart K/Ka/Kb | These tanks were constructed prior to June 11, 1973, and has not been modified or reconstructed since then.                                |



| Device ID   | Equipment | Regulation                | Summary of Non-Applicability Determination  |
|---|-----------|---------------------------|---|
| D593 D594<br>D597 D598<br>D601 D604<br>D605 D606<br>D624 D625 |           |                           |   |
| D1543 D1544   |           | 40 CFR 60,<br>Subpart QQQ | Original construction before 5/4/87.<br>No subsequent modification or reconstruction. |

**Table 4.3 Fugitive Components Not Subject to NSPS Requirements**

| Device ID | Equipment          | Regulation                | Summary of Non-Applicability Determination  |
|-----------|--------------------|---------------------------|---|
| D1605     | Fug. Comp. (P11S1) | 40 CFR 60,<br>Subpart GGG | Components associated with material loading or unloading. Not part of a process unit.                         |
| D1606     | Fug. Comp. (P11S4) |                           |   |
| D1607     | Fug. Comp. (P11S6) |                           |   |
| D1608     | Fug. Comp. (P12S1) | 40 CFR 60,<br>Subpart GGG | Components associated with wastewater treatment systems. Not part of a process unit.                          |
| D1609     | Fug. Comp. (P12S2) |                           |   |
| D1611     | Fug. Comp. (P13S1) | 40 CFR 60,<br>Subpart GGG | Components associated with material storage. Not part of a process unit.                                      |
| D1612     | Fug. Comp. (P13S3) |                           |   |
| D1613     | Fug. Comp. (P13S4) |                           |   |
| D1573     | Fug. Comp. (P2S3)  | 40 CFR 60,<br>Subpart GGG | Process unit was constructed prior to January 4, 1983, and has not been modified or reconstructed since then. |
| D1577     | Fug. Comp. (P2S5)  |                           |   |
| D1579     | Fug. Comp. (P3S1)  |                           |   |
| D1581     | Fug. Comp. (P3S3)  |                           |   |
| D1583     | Fug. Comp. (P4S1)  |                           |   |
| D1587     | Fug. Comp. (P5S1)  |                           |   |
| D1591     | Fug. Comp. (P7S1)  |                           |   |
| D1594     | Fug. Comp. (P7S4)  |                           |   |
| D1596     | Fug. Comp. (P8S1)  |                           |   |
| D1597     | Fug. Comp. (P8S2)  |                           |   |
| D1600     | Fug. Comp. (P9S3)  |                           |   |
| D1601     | Fug. Comp. (P10S1) |                           |   |

| Device ID | Equipment          | Regulation | Summary of Non-Applicability Determination |
|-----------|--------------------|------------|--|
| D1602     | Fug. Comp. (P10S2) |            |  |
| D1604     | Fug. Comp. (P10S4) |            |  |
| D1623     | Fug. Comp. (P10S5) |            |  |

This refinery is not subject to the NSPSs listed below.

- CFR 60 Subpart D - Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced after August 17, 1971. This refinery does not operate any steam generators that have a permitted heat capacity greater than 250 MMBtu/hr.
- 40 CFR 60 Subpart Da - Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978. This refinery does not meet the definition of an electric utility .
- 40 CFR 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. The refinery does not operate any steam generating units that are subject to this subpart.
- 40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. The refinery does not operate any steam generators that are subject to this subpart.
- 40 CFR 60 Subpart XX - Standards of Performance for Bulk Gasoline Terminals. The gasoline loading rack at this facility is subject to Subpart CC of part 63 as a Group 1 loading rack. Even though this Group 1 gasoline loading rack is also subject to Subpart XX of part 60, it is required to comply only with Subpart CC, according to 40 CFR 63.640(r).
- 40 CFR 60 Subpart III- Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes. This refinery does not conduct any SOCMI operations .
- 40 CFR 60 Subpart NNN - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations. This refinery does not conduct any SOCMI operations.
- 40 CFR 60 Subpart RRR - Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical. This refinery does not conduct any SOCMI operations.

***National Emission Standard for Hazardous Air Pollutants (NESHAP) (40 CFR 61 and 63)***

This refinery is generally subject to the following NESHAPs:

- 40 CFR 61 Subpart FF - National Emission Standard for Benzene Waste Operation,
- 40 CFR 63 Subpart R - National Emission Standards for Hazardous Air Pollutants for Gasoline Distribution Facilities.

- 40 CFR 63 Subpart CC - National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries,
- 40 CFR 63 Subpart UUU - National Emission Standard for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units, and
- 40 CFR 63 Subpart EEEE - National Emission Standard for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline).

Each of these standards, as applicable to the ConocoPhillips refinery, is incorporated into the Title V permit.

40 CFR 61 Subpart FF

40 CFR 61 Subpart FF-National Emission Standard for Benzene Waste Operations (Benzene Waste NESHAP) defines a major source as any chemical manufacturing plant, coke by-product recovery plant, or petroleum refinery with 10 megagram per year (Mg/yr) (11 tons/yr) or more of benzene in the waste streams. This regulation requires a major source to control benzene in any waste streams that contain 10 parts per million by weight (ppmw) or more of benzene. It requires the removal or destruction of the benzene contained in the waste using a treatment process or waste water treatment system that either a) removes benzene from the waste stream to a level less than 10 ppmw on a flow-weighted annual average basis, b) removes benzene from the waste stream by 99 percent or more on a mass basis, or c) destroys benzene in the waste stream by incinerating the waste in a combustion unit that achieves a destruction efficiency of 99 percent or greater for benzene.

The regulation also specifies a standard for each waste management unit that receives or manages the waste stream before and during treatment of the waste stream. Waste management unit includes tanks, surface impoundments, containers, individual drain systems, and oil water separators.

Condition P13.2 has been tagged to all processes that contain benzene waste streams that are subject to Subpart FF. All of these waste streams are subject to the recordkeeping and reporting requirements of 40 CFR 61.356 and 61.357, respectively. Where applicable, waste management units and waste treatment systems subject to Subpart FF have been identified in the permit by specifying the 500 ppm VOC limit in the "Emissions and Requirements" column and/or condition H23.9 in sections D and H of the Title V permit. The emission limit and condition have been tagged with Subpart FF. The listing in the "Emissions and Requirements" column also references Section J of the permit where the applicable Subpart FF requirements are contained.

The following equipment have been identified in the permit as subject to equipment-specific requirements of Subpart FF based on information contained in the individual equipment permit files or based on the refinery's Subpart FF report submitted to EPA as required by 40 CFR 61.357:

**Table 4.4 Equipment Subject to Benzene NESHAP**

| Process No.             | System No.                       | Equipment           |
|-------------------------|----------------------------------|---------------------|
| 9 (Treating/Stripping.) | 5 (Sour Water Stripping No. 1)   | Sour Water Stripper |
| 9 (Treating/Stripping.) | 6 (Sour Water Stripping No. 2)   | Sour Water Stripper |
| 13 (Storage Tanks)      | 3 (External Floating Roof Tanks) | Storage Tank(s)     |
| 13 (Storage Tanks)      | 8 (Domed EFR Tanks)              | Storage Tank(s)     |

**40 CFR 63 Subpart R**

Although 40 CFR 63 Subpart R applies to bulk gasoline terminals, it exempts gasoline terminals that are located within a contiguous area and under common control with a petroleum refinery complying with subpart CC sections 63.646, 63.648, 63.649, and 63.650; and that operate under Standard Industrial Classification code 2911 (facilities with petroleum refining as their primary business activity). The gasoline loading racks at this refinery meet this exemption and, therefore, are not affected sources to which subpart R is applicable. Compliance with several provisions of subpart R is required for the proposed refinery's gasoline loading racks, however, pursuant to subpart CC of 40 CFR part 63, as discussed below.

**40 CFR 63 Subpart CC**

The Wilmington refinery is also a major source under the definition of 40 CFR 63 Subpart CC (NESHAP from Petroleum Refineries). This rule seeks to reduce the emissions of eleven air toxics, including benzene. The rule requires controls for emissions of air toxics from storage tanks, equipment leaks, process vents, and wastewater collection and treatment system. For each equipment subject to Subpart CC, "HAP" is listed in the "Emissions and Requirements" column of sections D and H of the Title V permit along with a reference to Section J of the permit, which contains the emission limits and requirements for Subpart CC.

The following equipment have been identified in the permit as subject to Subpart CC based on the refinery's Notification of Compliance Status report submitted to EPA as required by 40 CFR 63.654(f) and/or based on response to additional information requested by the AQMD:

**Table 4.5 Group 1 Storage Vessels**

(Storage vessels with a capacity of  $\geq 177 \text{ m}^3$ , and vapor pressure  $\geq 10.4 \text{ kPa}$  (maximum) and  $\geq 8.3 \text{ kPa}$  (annual average), and Organic Liquid HAP concentration  $> 4\%$  by weight (annual average))

| Process No.        | System No.                       | Equipment       |
|--------------------|----------------------------------|-----------------|
| 13 (Storage Tanks) | 2 (EFR Tanks – Singe Seal)       | Storage Tank(s) |
| 13 (Storage Tanks) | 3 (External Floating Roof Tanks) | Storage Tank(s) |
| 13 (Storage Tanks) | 8 (Domed EFR Tanks)              | Storage Tank(s) |

**Table 4.6 Group 1 Wastewater Streams, Existing/New Source**

(Wastewater stream with total annual benzene loading  $\geq 10$  Mg/yr, and flow rate  $\geq 0.02$  L/min, and benzene concentration  $\geq 10$  ppmw)

| Process No.            | System No.               | Equipment              |
|------------------------|--------------------------|------------------------|
| 12 (Wastewater Plant.) | 1 (Wastewater Treatment) | Surge Tank(s)          |
| 12 (Wastewater Plant.) | 1 (Wastewater Treatment) | Oil/Water Separator(s) |
| 12 (Wastewater Plant.) | 1 (Wastewater Treatment) | Diversion Box          |
| 12 (Wastewater Plant.) | 1 (Wastewater Treatment) | Drain Sys. Component   |

**Table 4.7 Group 1 Process Vents, Existing/New Source**

(Process vents containing organic HAP concentration  $\geq 20$  ppmv, and total VOC emissions  $\geq 33$  kg/day)

| Process No. | System No. | Equipment |
|-------------|------------|-----------|
| None        | None       | None      |

**Table 4.8 Group 1 Gasoline Loading Rack, Existing/New Source**

| Process No.            | System No.                  | Equipment    |
|------------------------|-----------------------------|--------------|
| 11 (Loading/Unloading) | 4 (Tank Truck Bulk Loading) | Loading Rack |

**Table 4.9 Equipment Leaks, Existing Source**

(Equipment containing or contacting fluid that is 5% by weight total organic HAPs)

| Process No.                  | System No.                      | Equipment          |
|------------------------------|---------------------------------|--------------------|
| 1 (Fluid Catalytic Cracking) | 1 (FCCU Unit 152)               | Fugitive Emissions |
| 1 (FCC)                      | 2 (Fractionation, FCCU 152)     | Fugitive Emissions |
| 2 (Hydrotreating)            | 1 (Unifining Unit 59)           | Fugitive Emissions |
| 2 (Hydrotreating)            | 2 (Unifining Unit 80)           | Fugitive Emissions |
| 2 (Hydrotreating)            | 3 (Unifining Unit 89)           | Fugitive Emissions |
| 2 (Hydrotreating)            | 4 (Unifining Unit 90 )          | Fugitive Emissions |
| 2 (Hydrotreating)            | 5 (Unifining Unit 100)          | Fugitive Emissions |
| 3 (Catalytic Reforming)      | 1 (CRU 80)                      | Fugitive Emissions |
| 3 (Catalytic Reforming)      | 3 (CRU 100)                     | Fugitive Emissions |
| 5 (Hydrocracking)            | 1 (Hydrocracking Unit 120)      | Fugitive Emissions |
| 6 (Alkylation)               | 2 (Alkylation Unit 110 Heater)  | Fugitive Emissions |
| 8 (Blending)                 | 1 (Gasoline Blending)           | Fugitive Emissions |
| 8 (Blending)                 | 2 (Mid-Barrel Blending)         | Fugitive Emissions |
| 10 (Sulfur Production)       | 1 (Sulfur Recovery Plant No. 1) | Fugitive Emissions |
| 10 (Sulfur Production)       | 4 (Sulfur Recovery Plant No. 2) | Fugitive Emissions |
| 10 (Sulfur Production)       | 5 (Tail Gas Unit No. 2)         | Fugitive Emissions |
| 11 (Loading/Unloading)       | 4 (Gasoline Load Rack No. 1)    | Fugitive Emissions |
| 11 (Loading/Unloading)       | 6 (VRS for Load Rack No. 1)     | Fugitive Emissions |
| 18 (Isomerization Unit)      | 1 (Penex Plus Unit 60)          | Fugitive Emissions |

**Table 4.10 Group 2 Process Vents /Storage Vessels/ Wastewater Streams**

(Storage vessels with a capacity of  $\geq 177$  m<sup>3</sup>, and vapor pressure  $\geq 10.4$  kPa (maximum) and  $\geq 8.3$  kPa (annual average), and Organic Liquid HAP concentration  $< 4\%$  by weight (annual average), and process vents that are not group 1)

| Process No.             | System No.                       | Equipment       |
|-------------------------|----------------------------------|-----------------|
| 2 (Hydrotreating)       | 2 (Naptha Hydrotreater Unit 80)  | Accumulator     |
| 2 (Hydrotreating)       | 2 (Naptha Hydrotreater Unit 80)  | Flash Tank      |
| 2 (Hydrotreating)       | 2 (Naptha Hydrotreater Unit 80)  | Compressor(s)   |
| 2 (Hydrotreating)       | 5 (Naptha Hydrotreater Unit 100) | Surge Tank      |
| 4 (Hyd. Production)     | 1 (Hydrogen Plant 120)           | Degasifier      |
| 4 (Hyd. Production)     | 1 (Hydrogen Plant 120)           | Flash Tank      |
| 4 (Hyd. Production)     | 2 (Hydrogen Plant 118)           | KO Pot          |
| 5 (Hydrocracking)       | 1 (Hydrocracking Unit 120)       | Column          |
| 5 (Hydrocracking)       | 1 (Hydrocracking Unit 120)       | Flash Tank      |
| 12 (Wastewater Plant.)  | 1 (Wastewater Treatment)         | Holding Tanks   |
| 13 (Storage Tanks)      | 2 (EFR Tanks – Singe Seal)       | Storage Tank(s) |
| 13 (Storage Tanks)      | 3 (External Floating Roof Tanks) | Storage Tank(s) |
| 13 (Storage Tanks)      | 8 (Domed EFR Tanks)              | Storage Tank(s) |
| 18 (Isomerization Unit) | 1 (Penex Plus Unit 60)           | Reactor(s)      |
| 18 (Isomerization Unit) | 1 (Penex Plus Unit 60)           | Caustic Drum    |

#### 40 CFR 63 Subpart UUU

Subpart CC addresses the emissions of air toxics from miscellaneous process vents in petroleum refineries. However, it does not address emissions from process vents on catalytic cracking units, catalytic reforming units, and sulfur recovery units. To address air toxics emissions from these sources, EPA adopted 40 CFR 63 Subpart UUU- National Emission Standard for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units (CCUs), Catalytic Reforming Units (CRUs), and Sulfur Recovery Units (SRUs).

For equipment this is subject to Subpart UUU, the regulated pollutant is listed in the “Emissions and Requirements” column of sections D and H of the Title V permit. This listing references Section J of the permit, which contains the emission limits and requirements of Subpart UUU.

The following equipment have been identified in the permit as subject to the requirements of this rule based on engineering knowledge of the process, permit, and on response to additional information requested by the AQMD:

**Table 4.11 Fluid Catalytic Cracking Unit**

| Process No.                  | System No.        | Equipment                   |
|------------------------------|-------------------|-----------------------------|
| 1 (Fluid Catalytic Cracking) | 1 (FCCU Unit 152) | Regenerator                 |
| 1 (Fluid Catalytic Cracking) | 3 (FCCU Control)  | Electrostatic Precipitators |

ConocoPhillip’s FCCU is also subject to 40CFR60 Subpart J. As specified in Table 1 of Subpart UUU, FCCUs, which are also subject to 40CFR60 Subpart J, are subject to a PM emission limit of 1 lb. per 1000 lb. of coke burnoff and an opacity limit of 30 percent (except for one 6-minute

average opacity reading in any one-hour period). As specified in Table 8 of Subpart UUU, the FCCU is subject to a CO emission limit of 500 ppmvd (as measured, 1-hour avg.).

**Table 4.12 Catalytic Reforming Unit**

| <b>Process No.</b>      | <b>System No.</b> | <b>Equipment</b>    |
|-------------------------|-------------------|---------------------|
| 3 (Catalytic Reforming) | 1 (CRU 80)        | Reactor(s)          |
| 3 (Catalytic Reforming) | 1 (CRU 80)        | Stabilizer Column   |
| 3 (Catalytic Reforming) | 1 (CRU 80)        | Accumulator         |
| 3 (Catalytic Reforming) | 1 (CRU 80)        | Surge Tank(s)       |
| 3 (Catalytic Reforming) | 1 (CRU 80)        | Separator Vessel    |
| 3 (Catalytic Reforming) | 1 (CRU 100)       | Reactor(s)          |
| 3 (Catalytic Reforming) | 1 (CRU 100)       | Separator Vessel    |
| 3 (Catalytic Reforming) | 1 (CRU 100)       | Debutanizer Column  |
| 3 (Catalytic Reforming) | 1 (CRU 100)       | Depropanizer Column |
| 3 (Catalytic Reforming) | 1 (CRU 100)       | Dehexanizer Column  |
| 3 (Catalytic Reforming) | 1 (CRU 100)       | Accumulator(s)      |
| 3 (Catalytic Reforming) | 1 (CRU 100)       | Tank(s)             |

ConocoPhillip's two (2) CRUs are subject to the inorganic HAP limit for existing semi-regenerative CRUs. As specified in Table 22 to Subpart UUU, existing semi-regenerative CRUs must reduce uncontrolled emissions of hydrogen chloride (HCl) by 92 percent by weight using a control device or to a concentration of 30 ppmvd corrected to 3% oxygen. The refinery has demonstrated that it has met the requirement to reduce HCl to levels of less than 30 ppmvd. Per 40CFR63.1562(f)(5), ConocoPhillip's CRU is not subject to the organic HAP limit of this regulation since the vent stream is routed to the refinery fuel gas system. Also, there are no bypass lines for these CRUs.

**Table 4.13 Sulfur Recovery Unit(s)**

| <b>Process No.</b>     | <b>System No.</b>               | <b>Equipment</b> |
|------------------------|---------------------------------|------------------|
| 10 (Sulfur Production) | 1 (Sulfur Recovery Plant No. 1) | Final Condenser  |
| 10 (Sulfur Production) | 4 (Sulfur Recovery Plant No. 2) | Final Condenser  |

This refinery's two (2) SRUs, each having a capacity greater than 20 long tons per day, utilize reduction control systems followed by oxidation and incineration. Since both SRUs are also subject to 40CFR60 Subpart J, they are subject to 40 CFR §63.1568(a)(1)(i), which is an SO<sub>2</sub> emission limit of 250 ppmv (dry, 0% excess air) as specified in Table 29 of Subpart UUU.

Normally, only one SRU is in operation at any one time. Each consists of a Claus SRU and a Beavon Stretford tail gas unit followed by incineration. It is not possible to bypass the tail gas unit or the incinerator independently of the Claus unit. Therefore, in the event the Claus unit or tail gas unit can not receive feed gas, the entire unit is bypassed by rerouting the feed gas to a vapor recovery system connected to a flare. These bypass events are regulated under this subpart.

For compliance with the bypass provision, the unit must meet the requirements of §63.1569(a)(1)(i) which permits a device to be installed to continuously record the output of each valve controller that routes the vent gases around the SRU's to the vapor recovery system. For each bypass event exceeding 60 minutes, the time and duration of such event must be reported. Both bypass lines have been equipped with strip chart devices to continuously record the controller output to the bypass valve.

#### 40 CFR 63 Subpart EEEE

This NESHAP applies to Organic Liquid (Non-Gasoline) Distribution operations that are located at or are part of a major source of HAPs and that are not subject to another part 63 standard such as 40 CFR 63 Subpart CC. Organic liquids are defined as all crude oils, regardless of HAP compositions, and non-crude oil liquids that contain at least 5 percent organic HAP and have an annual average true vapor greater than 0.1 psia. The standard covers storage tanks, transfer racks, equipment leak components and transport vehicles that handle organic liquids.

This facility has identified affected sources as defined by this subpart for organic liquid distribution (non-gasoline). All affected sources are storage tanks used for storage of process treatment chemicals. Since all these tanks are less than 5,000 gallons, no controls are required per Table 2 – Emission Limits, and no work practice standards apply per Table 4 – Work Practice Standards.

Per 40 CFR 63.2338(c)(2), all equipment leak components associated with the affected sources are excluded, since all pumps, valves, and piping associated with these sources transfer organic liquids directly to non-tank process unit components.

There are no transfer racks, or transport vehicles subject to 40 CFR 63 Subpart EEEE at this facility.

All storage tanks, transfer racks, and equipment leak components not identified as an affected source under this subpart are generally part of the affected sources under 40 CFR 63 Subpart CC.

#### NESHAP Non-applicability

This refinery is not subject to the NESHAPs listed below.

- 40 CFR 61 Subpart J - National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene. The refinery does not operate any equipment in “benzene service.”
- 40 CFR 61 Subpart Y - National Emission Standards for Benzene Emissions from Benzene Storage Vessels. The refinery does not store or transfer benzene.
- 40 CFR 61 Subpart BB - National Emission Standards for Benzene Emissions from Benzene Transfer Operations. The refinery does not store or transfer benzene.
- 40 CFR 63 Subpart F - National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry. The refinery does not operate any SOCOMI operations.



- 40 CFR 63 Subpart G - National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater. The refinery does not operate any SOCMI operations.
- 40 CFR 63 Subpart H - National Emission for Organic Hazardous Air Pollutants for Equipment Leaks. The refinery does not operate any SOCMI operations.
- 40 CFR 63 Subpart Q - National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers. The refinery does not use chromium based water treatment chemicals.
- 40 CFR 63 Subpart VV - National Emission Standards for Oil-Water Separators and Organic-Water Separators. This subpart is not applicable because no other subpart of 40 CFR Part 60, 61, or 63 references this subpart, even though this refinery controls emissions from oil-water and organic-water separators.
- 40 CFR 63 Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE). Per subsection § 63.6590(b)(1)(i), this subpart does not apply because Devices D678, D679, D1657, D1768, and D683; are engines that are restricted to emergency power or limited use only. Similarly, this subpart does not apply per subsection § 63.6590(b)(3) because Device D732 is an existing spark-ignition four-stroke lean-burn stationary RICE that was installed before December 19, 2002 (with no modification or reconstruction), and hence, is not subject to this subpart. The remaining engines are characterized with ratings of 500 brake horsepower or less; thus, this subpart does not apply to these existing stationary RICE per subsection § 63.6601(b).
- 40 CFR 63 Subpart EEE - National Emission Standards for Hazardous Air Pollutants for Hazardous Waste Incinerators. There are no hazardous waste incinerators, cement kilns, or aggregate kilns located at this refinery.
- 40 CFR 63 Subpart GGGGG – National Emission Standard for Hazardous Air Pollutants for Site Remediation. Per 63.7881(b)(3), the equipment is exempt because the site remediation is performed under a RCRA corrective action conducted at a TSDF and is required by a State program per RCRA section 3006.

#### ***Compliance Assurance Monitoring (CAM) (40 CFR 64)***

This regulation requires facilities of major sources to submit CAM plans to accompany the application for renewal of their respective Title V permits or for initial Title V applications submitted after April 20, 1998. Since this application is an initial Title V application submitted prior to April 20, 1998, no CAM plans are required at this time.

#### **5. Periodic Monitoring Requirements**

Applicable monitoring and operational requirements for which the facility is required to comply are identified in the Title V permit (for example, Section D, F, and J and Appendix B of the proposed Title V permit).

This refinery is subject to RECLAIM monitoring, source test requirements, and other monitoring provisions that are required by federal, state or AQMD laws and regulations. Section F of the

permit contains the monitoring and source test permit conditions imposed by Regulation XX. More specifically, it summarizes the monitoring and testing requirements for Major, Large and Process units at NO<sub>x</sub> and SO<sub>x</sub> RECLAIM facilities. Finally, Compliance Assurance Monitoring (CAM) requirements of 40 CFR Part 64 do not currently apply to any of the permitted emission sources at this facility.

As specified in AQMD Rule 3004(a)(4), the proposed permit includes periodic monitoring conditions for equipment that is subject to SIP-approved, federally enforceable rules, which do not require sufficient monitoring to assure compliance with emission limitations or other requirement of the rule. Permit conditions in Sections D and H of the permit that fulfill Title V periodic monitoring requirements are tagged with the following: *Rule 3004(a)(4)-Periodic Monitoring, 12-12-1997*. These periodic monitoring conditions are also tagged with the underlying rule(s) for which the condition is fulfilling the monitoring requirement. In some cases, existing monitoring conditions that were installed under NSR fulfill the periodic monitoring requirements for other rules or regulations. For these cases, the monitoring condition was tagged with Rule 3004(a)(4) and the underlying rule(s) for which the condition is fulfilling the monitoring requirement.

A draft Periodic Monitoring Guidance document was published by the AQMD in August 1997. A public consultation was held to solicit public input. The final Periodic Monitoring Guideline Document was published by the AQMD in November 1997. This guideline was used to establish the periodic monitoring requirements in the Title V permit. In addition, the AQMD used the CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Requirements in SIP (June 24, 1999) for applicable opacity limits, grain loading limits for material handling equipment, and for sulfur content of fuels. Furthermore, the AQMD used the CAPCOA/ARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP for combustion sources (July 2001). These documents are included in Appendix II.

## **6. Title V Permit Format**

The Title V permit comprises eleven sections and two appendices. Each section is devoted to a particular function as summarized below:

### **Section A Facility Information**

This section contains operator name, facility location and mailing address. It also lists the name of the responsible official and contact person for the facility. Lastly, this section indicates whether Regulation XXX and RECLAIM apply to the facility.

### **Section B RECLAIM Annual Emission Allocation**

This section applies to RECLAIM facilities only and lists NO<sub>x</sub> and SO<sub>x</sub> allocations for the facility. This facility is subject to both the NO<sub>x</sub> and SO<sub>x</sub> requirements of RECLAIM.

**Section C      Facility Plot Plan**

This section is reserved for the development of the facility plot plan in the future.

**Section D      Facility Description and Equipment Specific Conditions**

This section describes equipment at the refinery that has been issued permits to operate. It also includes facility-wide operating conditions, emission limitations, the rules for which the emission limits and permit conditions are derived, and the periodic monitoring requirements as appropriate. The description of the process and equipment is structured in the following manner:

Process

A process is the largest grouping of equipment under the Title V permit, which includes all equipment involved in the making of final product from raw feed. A process can end at an intermediate product if the succeeding process is significantly different.

System

A system is the combination of equipment into a unit which is a logical subsystem of a process. A system can be used to identify individual process lines, or it can separate a long process line into separate functions. The main use of this grouping will be to separate a large process into manageable groups.

Equipment

This column describes equipment contained within a system or a process. It contains information necessary to identify equipment and ensure compliance with rules and regulations such as dimensions of a tank, heat input of a heater, horsepower of an engine. This section also lists the equipment application number (A/N). The A/N is an identification number issued by the AQMD to the application submitted to the AQMD by the applicant for a Permit to Construct or Permit to Operate a piece of equipment. A facility is required to submit a permit application when it plans to install a new piece of equipment, alter an existing piece of equipment, or modify a permit condition. An A/N in the Title V permit changes each time the AQMD approves a new application.

Device Identification (I.D.) Number

Each piece of equipment is assigned a unique I.D. number. When a piece of equipment is modified it retains its existing I.D. number. However, when it is removed from service, the I.D. number is retired and will not be used to identify another piece of equipment at this facility.

Connected to

This column is used to identify air pollution control equipment that is connected to a specific piece of equipment at the refinery.

#### RECLAIM Source Type/Monitoring Unit

This column is used to identify equipment classification pursuant to the RECLAIM program. The classification of major source, large source and process units are defined in Rule 2012. The equipment classification is assigned to NO<sub>x</sub> and SO<sub>x</sub> emission sources subject to RECLAIM. Each classification of equipment is subject to a specific monitoring requirement under RECLAIM.

#### Emissions and Requirements

This column lists emission limits applicable to each piece of equipment. It also lists the rules for which the limits were derived. If AQMD adopted a rule that has not yet been approved into the State Implementation Plan (SIP), emission limits established by both the SIP-approved and non SIP-approved versions of the rule are included in the permit.

#### Conditions

This column lists specific permit conditions applicable to the facility, process, system or equipment. A facility level condition applies to the whole facility and is designated by the letter F. The process conditions apply to the entire process and are designated by the letter P. The system conditions apply to the entire system and are designated by the letter S. The equipment (device) level conditions are designated by other letters depending on the category of conditions such as monitoring, recordkeeping, etc. Each permit condition references the law or rule for which the requirements in the condition were derived. If AQMD adopted a rule that has not yet been approved into the SIP, emission limits established by both the SIP-approved and non SIP-approved versions of the rule are included in the permit. One category of the device level condition is the periodic monitoring condition.

#### **Section E      Administrative Conditions**

This section contains general administrative permit conditions that apply to all facilities. The conditions listed in this section apply to all permitted equipment at the facility unless superseded by other conditions listed elsewhere in the facility permit.

#### **Section F      RECLAIM Monitoring & Source Testing Requirements**

This section contains Monitoring and source testing permit conditions imposed by Regulation XX. It summarizes the monitoring and testing requirements for Major, Large and Process units at RECLAIM facilities.

#### **Section G      RECLAIM Recordkeeping & Reporting Requirements**

This section contains recordkeeping and reporting requirements specified in Regulation XX. It summarizes the recordkeeping and reporting requirements for RECLAIM sources.

**Section H      Permit to Construct and Temporary Permit to Operate**  
The permit format in this section is the same as described for Section D above. However, equipment listed in this section has not been issued permits to operate, but were issued a permit to construct and/or a temporary permit to operate.

**Section I      Compliance Plans & Schedules**  
This section lists active compliance plans specified in the SIP-approved rules.

**Section J      Air Toxics**  
This section lists permit conditions pertaining to NESHAP/MACT requirements.

**Section K      Title V Administration**  
This section lists the Title V administrative conditions. They are the same for all Title V facilities, except for the list of applicable rules table at the end of the section. The table at the end of the section lists all applicable rules referenced in Sections D and H (emission limit and conditions) and any rules that are referenced to the facility. This table also indicates which rules are federally enforceable and which are only enforceable by AQMD.

**Appendix A    NO<sub>x</sub> and SO<sub>x</sub> Emitting Equipment Exempt from Written Permit Pursuant to Rule 219**  
This section lists classes of NO<sub>x</sub>- and SO<sub>x</sub>- emitting Rule 219 exempt equipment present at the facility that are subject to RECLAIM.

**Appendix B    Rule Emission Limits**  
Some emission limits that are too complex to be listed in the Emissions and Requirements column of Sections D and H are listed in Appendix B of the Title V permit. Emission limits in this appendix are referenced by an emission type “(9)” in the “Emissions and Requirements” column of the permit.

## **7. Permit Features**

### Permit Shield

A permit shield is an optional part of a Title V permit that gives the facility an explicit protection from requirements that do not apply to the facility. A permit shield is a provision in a permit that states that compliance with the conditions of the permit shall be deemed compliance with all identified regulatory requirements. To incorporate a permit shield into the Title V permit involves submission of applications for change of conditions for each equipment affected by the permit shield. Permit shields are addressed in Rule 3004 (c). This facility has not applied for a permit shield for any of the equipment at the refinery.

### Alternate Operating Scenarios

An alternative operating scenario (AOS) is a set of provisions and conditions in a permit that allow the operator to switch back and forth between alternative modes of operation without submitting an application for a permit revision before each switch. However, each AOS must be evaluated for compliance with AQMD rules and regulations and applicable State and Federal

requirements. AOS is addressed in Rule 3005 (j). This facility has not applied for an AOS for any of the equipment at the refinery.

#### Emissions Trading

This facility is subject to emissions trading requirements under Regulation XX.

#### Prevention of Significant Deteriorations (PSD) Permits

PSD is a federal program for permitting new and modified sources that emit air pollutants for which the AQMD is classified as in attainment with the National Ambient Air Quality Standards (NAAQS). On November 1, 1979, the Wilmington refinery was issued a PSD permit by EPA for the installation of a new CO boiler (Device D687, Boiler No. 8, in section D of the proposed Title V permit) to combust CO emissions from the existing fluid catalytic cracking unit (FCCU). The PSD permit for Boiler No. 8 initially included a special condition requiring the maintenance of an existing thermal oxidizer on a cold standby basis and to only operate the oxidizer at such times when either CO Boilers No. 7 or No. 8 are not in operation. This condition became obsolete because, in 1985, the company started using a high temperature regeneration process for its FCCU which consequently reduced its carbon monoxide emissions and eliminated the need for the two CO boilers. The company subsequently converted Boiler No. 8 from a CO emission control device into a conventional fuel-fired unit. The PSD permit also required Boiler No. 8 to comply with 40 CFR 60 Subpart J. This condition has been incorporated into the proposed Title V permit through device conditions B61.4, D90.10, and H23.1. Finally, condition H1.1 which is tagged to the boiler requires compliance with all terms and conditions of the PSD permit.

#### EPA New Source Review (NSR) Permits

NSR is a federal program for permitting new and modified sources that emit air pollutants for which the AQMD is classified as in Non-attainment with NAAQS. Before SIP-approval of the AQMD NSR Rule in 1978, EPA issued NSR permits for new construction and/or equipment modifications in the AQMD. A check of the records indicates that there are no NSR permits issued by the EPA for the Wilmington refinery.

### **8. Summary of Emissions and Health Risks**

#### Summary of Refinery Criteria Air Pollutant and Toxic Air Contaminant Emissions

This section contains a summary of the Criteria Air Pollutant (CAP) and Toxic Air Contaminant (TAC) emissions for the refinery as reported in the refinery's Annual Emission Report (AER) for fiscal year 2006-2007.

**Table 8.1 Criteria Pollutant Emissions (tons/year)  
from Annual Reported Emissions for Reporting Fiscal Year 2006 – 2007**

| Pollutant | Emissions (tons/year) |
|-----------|-----------------------|
| NOx       | 617                   |
| CO        | 791                   |
| VOC       | 297                   |
| PM        | 272                   |
| SOx       | 410                   |

**Table 8.2 Toxic Air Contaminants Emissions (TAC)  
Annual Reported Emissions for Reporting Year 2006 – 2007**

| The Following TACs Were Reported          | Emissions (lbs/yr) |
|---|--------------------|
| 1,2,4-Trimethylbenzene                    | 2097               |
| 1,3-Butadiene                             | 1118               |
| Acetaldehyde                              | 2926               |
| Acrolein                                  | 733                |
| Ammonia                                   | 449810             |
| Arsenic                                   | 11.6               |
| Asbestos                                  | 0.54               |
| Benzene                                   | 707                |
| Beryllium                                 | 1.08               |
| Cadmium                                   | 11.4               |
| Carbonyl sulfide                          | 1599               |
| Chlorine                                  | 4.9                |
| Chlorodifluoromethane {Freon 22}          | 360                |
| Chromium (VI)                             | 0.004              |
| Copper                                    | 88                 |
| Diesel engine exhaust, particulate matter | 701                |
| Diethylene glycol monobutyl ether         | 12.8               |
| Diethylene glycol monomethyl ether        | 138                |
| Ethylbenzene                              | 1531               |
| Ethylene glycol monobutyl ether           | 21.7               |
| Ethylene glycol monomethyl ether          | 8.6                |
| Formaldehyde                              | 2499               |
| Glycol ethers (and their acetates)        | 11.3               |
| Hexane                                    | 5731               |
| Hexamethylene-1,6-diisocyanate            | 36.7               |
| Hydrochloric acid                         | 11.5               |
| Hydrogen sulfide                          | 2299               |
| Lead (inorganic)                          | 27.7               |
| m-Xylene                                  | 2.33               |
| Methyl t-Butylether                       | 1.24               |
| Manganese                                 | 469                |
| Mercury                                   | 4.0                |
| Methanol                                  | 28520              |
| Methyl ethyl ketone                       | 862                |
| Methyl isobutyl ketone {Hexone}           | 0.31               |
| Naphthalene                               | 608                |
| Nickel                                    | 63.6               |
| PAHs, total, with components not reported | 22.5               |
| Perchloroethylene                         | 690                |
| Propylene glycol monomethyl ether         | 101                |

| The Following TACs Were Reported          | Emissions (lbs/yr) |
|---|--------------------|
| Propylene glycol monomethyl ether acetate | 51.8               |
| Selenium                                  | 11.9               |
| Styrene                                   | 17.7               |
| Sulfuric Acid                             | 37423              |
| Toluene                                   | 5702               |
| Trichloroethylene                         | 2153               |
| Xylenes                                   | 7204               |
| o-Xylene                                  | 0.81               |

#### Health Risk from Toxic Air Contaminants

The Wilmington refinery is subject to review by the Air Toxics Information and Assessment Act (AB2588). The Final Facility Health Risk was approved on May 31, 2001 with the following risk factors.

|                      |                     |
|----------------------|---------------------|
| Cancer Risk          | 8.60 in one million |
| Acute Hazard Index   | 0.98                |
| Chronic Hazard Index | 0.07                |

## **9. Compliance History**

The Wilmington refinery is subject to the terms of a federal consent decree entered with the U.S. District Court (Southern District of Texas) on January 27, 2005; and an AQMD Hearing Board Order (Variance) entered for Case No. 4900-79 regarding compliance with District Rule 1118.

#### Consent Decree (Civil Action No. H-05-0258)

In 2000, the United States Environmental Protection Agency (USEPA) initiated a nationwide, broad-based compliance and enforcement initiative involving the petroleum refining industry. As a result of this initiative, the subject Consent Decree (CD) is the product of a settlement between ConocoPhillips and EPA over alleged violations of certain Clean Air Act and CERCLA/EPCRA provisions.

This Consent Decree was filed in U.S. District Court for the Southern District in Texas on January 27, 2005. This comprehensive settlement covers ConocoPhillips refineries located in Belle Chasse, La.; Linden, N.J.; Borger and Sweeny, Texas; Carson and Wilmington, Calif.; Ferndale, Wash.; Rodeo and Santa Maria, Calif.; Trainer, Pa.; and Roxanna and Hartford, Ill. Under this agreement, ConocoPhillips agreed to the following at the Wilmington Refinery:

- All heaters, boilers, flares, and SRUs, which were not already subject to 40CFR60 Subpart J, became affected sources subject to this NSPS. As required by the consent decree, ConocoPhillips submitted applications to the AQMD to integrate these requirements into the refinery's RECLAIM facility permit. These requirements are included in the refinery's proposed Title V permit.
- Enhancement of the refinery's Benzene Waste Operations NESHAP (40CFR61 Subpart FF) program.
- Enhancements of the refinery's Leak Detection and Repair (LDAR) program.



- Implementation of new investigative, reporting, and corrective action procedures for flares.

#### Variance(s)

*Hearing Board Case No. 4900-79:* AQMD Rule 1118 was amended in November of 2005. Subsection (g)(3) of the amended rule specifies that owners or operators with flares subject to the rule shall install and operate a flare monitoring system (FMS) by July 1, 2007 to perform monitoring and recording of the parameters specified in the second section of Table 1 of the rule. This monitoring includes gas flow, gas higher heating value (HHV), and total sulfur concentration (TSC) of the gas. Subsections (g)(3) and (j)(1)(C) contain performance specifications for the monitors. Rule 1118(j)(1)(C) also requires that the accuracy of the flow meter be verified annually according to manufacturer specifications. Additionally, Rule 1118 contains reporting requirements that are based on these monitoring requirements.

The ConocoPhillips Wilmington Refinery contains the following five General Service Flares that are subject to Rule 1118: North Flare (C706), South Flare (C723), LPG Rental Flare (C735), LPG Flare (C736), and Hydrocracking Flare (C748).

At the time of the rule adoption, technical challenges and issues related to feasibility, reliability, maintainability, accuracy, and safety that had the potential to delay implementation of the specified monitoring systems. Due to these known issues, the AQMD Governing Board adopted a resolution directing AQMD staff to work with the Western States Petroleum Association and its members to resolve outstanding issues. Pilot projects for the development of TSC and HHV analyzers were not completed until March 2008. Based on a determination that the pilot analyzers demonstrated compliance with the technical requirements of Rule 1118, the AQMD approved the TSC and HHV analyzers on May 20, 2008. . Under the variances issued by the Hearing Board, the refineries have until September 1, 2008, to complete the design, acquisition, and installation of the required analyzers.

Based on the most current information available, the September 1, 2008 variance deadline is not likely to be met by the refineries because the analyzer approval was given later than expected. On March 27, 2008, the refiners submitted to the Hearing Board a written request for continuance of the April 22-24, 2008 hearing scheduled in their variance orders for consideration of petitions for modification/extension. The Hearing Board granted this request, and also continued the previously established April 8, 2008 date for filing of such petitions. The Hearing Board established a new filing date of June 27, 2008, and scheduled the hearing on the petitions for July 15, 16, and 17, 2008.

As required by Rule 3004(a)(10)(C), condition I1.2 has been added to the affected equipment in Sections D and H of the permit requiring the operator to comply with all the conditions of the variance including the submittal of progress reports. A copy of each of the documents related to this regular variance is available on the internet under the AQMD's "Facility INformation Detail" database (FIND, at [http://www.aqmd.gov/webappl/fim/prog/hbliberty.aspx?fac\\_id=800363](http://www.aqmd.gov/webappl/fim/prog/hbliberty.aspx?fac_id=800363)).

The issuance of the regular variance by the AQMD Hearing Board does not affect federal or citizen enforceability of the subject requirements.

### Order(s) for Abatement

The refinery is not currently subject to any AQMD Orders for Abatement.

### Notices to Comply and Notices of Violation

As noted, the refinery has been in continuous operation since 1919. Since the inception of Los Angeles County Air Pollution Control District in 1947 the refinery has been subject to both self-reporting requirements and AQMD inspections. The facility is currently in compliance. Further information regarding the facility's compliance status is available on the internet under the AQMD's "Facility Information Detail" database (FIND, at [http://www.aqmd.gov/webappl/fim/prog/novnc.aspx?fac\\_id=800363](http://www.aqmd.gov/webappl/fim/prog/novnc.aspx?fac_id=800363)).

Likewise, the compliance documentation for Variances and Abatement Orders is also available on the internet under the AQMD's "Facility Information Detail" database.

## **10. Compliance Certification**

By virtue of the title V permit application and issuance of this permit, the reporting frequency for compliance certification for the refinery shall be annual.

## **11. Appendices**

In order to minimize printing, all of the following appendices are available on the AQMD website as shown below. In addition, they will be made available on CDs upon request. Please contact the AQMD contact person identified on the public notice for this facility or call Andrew Chew at (909) 396-2493 for assistance in finding the information on the website or to obtain a copy of the CD.

- I. Technical Guidance Document For the Title V Permit Program (March 2005, Version 4.0) (<http://www.aqmd.gov/titlev/TGD.html>)
- II. Periodic Monitoring Guidance Documents
  - A. AQMD Periodic Monitoring Guidelines for Title V Facilities (November 1997) (<http://www.aqmd.gov/titlev/pdf/PeriodicMonitoringGuidelines-97.pdf>)
  - B. CAPCOA/CARB/EPA Region IX Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP (June 1999) (<http://www.arb.ca.gov/fcaa/tv/tvinfo/pmrec624.pdf>)
  - C. CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources (July 2001) (<http://www.arb.ca.gov/fcaa/tv/tvinfo/pmrecoms.pdf>)
- III. Summary Report of Notice of Violations. Further information regarding the facility's compliance status is available on the internet under the AQMD's "Facility Information Detail" database (FIND, at [http://www.aqmd.gov/webappl/fim/prog/novnc.aspx?fac\\_id=800363](http://www.aqmd.gov/webappl/fim/prog/novnc.aspx?fac_id=800363)).
- IV. Variances and Abatement Orders. Further information regarding the facility's compliance status is available on the internet under the AQMD's "Facility Information Detail" database (FIND, at [http://www.aqmd.gov/webappl/fim/prog/hbdisplay.aspx?fac\\_id=800363](http://www.aqmd.gov/webappl/fim/prog/hbdisplay.aspx?fac_id=800363)).